Sponsors

Organizers

FV2013 XIII Congresso Luso-Espanhol de Fisiologia Vegetal

FV2013

XIII Congresso Luso-Espanhol de Fisiologia Vegetal

24 - 28 Jul . **2013** . Lisboa . Portugal

Abstract Book

Natacha Vieira, Nelson Saibo,
M. Margarida Oliveira (Eds.)

Sociedade Portuguesa de Fisiologia Vegetal

“XIII Congresso Luso-Espanhol de Fisiologia Vegetal”

- Abstract Book -

Natacha Vieira, Nelson Saibo, M. Margarida Oliveira (Eds.)
Sociedade Portuguesa de Fisiologia Vegetal
ITQB - Oeiras, Portugal (Julho, 2013)

Impressão e Acabamento:
Dossier – Comunicação e Imagem, Lda.
www.dossier.com.pt

Depósito Legal nº 362078/13

25 July 2013 (Thursday morning)

Plenary Lecture (3.2.15)

Chair: M. Manuela Chaves

9:00-10:00	**Pilar Carbonero**	**Physiological relevance and transcriptional regulation of hydrolase encoding genes upon seed germination: from model systems to crops**

Keynote Lecture S3 (room 3.2.15)

Chair: M. Margarida Oliveira

10:00-10:30	**Paul Christou (S3)**	**Plant biotechnology based products for animal feed and human health**

Session 1b: Applied Physiology (room 3.2.15) — Sponsored by ARALAB

Chairs: Mª Dolores Rodriguez — João Santos Pereira

11:30-11:45	Amaranta García-Garijo	Accumulation and detoxification of herbibideIMAZAMOX in plants of *P. vulgaris* and *V. sativa*
11:45-12:00	Carlos Correia	Green manure legumes affect seasonal soil and leaf CO_2 exchange rates in an olive rainfed orchard
12:00-12:15	Marta Pintó-Marijuan	Clues to the impact of atmospheric NH_3 from multifunctional agrosystems on *Quercus suber* photosynthesis
12:15-12:30	A. Guerreiro	Evolution of strawberry fruit quality treated with pectin based edible coatings enriched with citral through storage
12:30-12:45	Fermín Morales	Carbon balance, partitioning and photosynthetic acclimation in fruiting grapevine (*Vitis vinifera* L. cv tempranillo) grown under simulated climate change (elevated CO_2, elevated temperature and moderate drought) scenarios in temperature gradient greenhouses
12:45-13:00	Francisco Pérez-Alfocea	ROOTOPOWER: Empowering root-targeted strategies to minimize abiotic stress impacts on horticultural crops
13:00-13:15	Joana Lado	Influence of light on carotenoid and ascorbic acid accumulation in 'Star Ruby' grapefruit

Session 2b: Cell Biology, Development & Senescence (room 6.1.36)

Chairs: José Feijó — Conceição Santos

11:30-11:45	Ana Campilho	HP6 function during development of root lateral organs
11:45-12:00	Elena Nájar	SNRK2 family in maize: regulation and characterization of a zinc-finger transcription factor
12:00-12:15	Marcos Viejo	DNA methylation profile, immunolocalization of epigenetic marks and programmed cell death effector caspase 3 throughout chestnut sexual embryogenesis
12:15-12:30	M. Manuela Costa	A subcellular tug of war involving three MYB proteins underlies a molecular antagonism in Antirrhinum flower asymmetry
12:30-12:45	María-Teresa Solís	Dynamics of DNA methylation and MET1a-LIKE expression during pollen reprogramming to embryogenesis
12:45-13:00	Raquel Iglesias-Fernández	Transcription factors of the bZIP family affecting *Arabidopsis thaliana* seed germination *sensu stricto*

S2B/O6: TRANSCRIPTION FACTORS OF THE BZIP FAMILY AFFECTING *ARABIDOPSIS THALIANA* SEED GERMINATION SENSU STRICTO

Raquel Iglesias-Fernández[1], Cristina Barrero-Sicilia[1], Néstor Carrillo-Barral[2], Luis Oñate-Sánchez[1], Pilar Carbonero[1]
[1]Centro de Biotecnología y Genómica de Plantas (UPM-INIA), ETSI Agrónomos, Universidad Politécnica de Madrid, Campus de Montegancedo, 28223, Pozuelo de Alarcón, Madrid (Spain) raquel.iglesias@upm.es
[2]Departamento de Fisiología Vegetal, Facultad de Farmacia, Universidad de Santiago de Compostela, 15782, Santiago de Compostela (Spain)

During seed germination, the endosperm cell walls (CWs) suffer an important weakening process mainly driven by hydrolytic enzymes, such are endo-β-mannanases (MAN; EC. 3.2.1.78) that catalyze the cleavage of β1→4 bonds in the mannan-polymers[1]. In *Arabidopsis thaliana* seeds, endo-β-mannanase activity increases during seed imbibition, decreasing after radicle emergence[1]. *AtMAN7* is the most highly expressed *MAN* gene in seeds upon germination and their transcripts are restricted to the micropylar endosperm and to the radicle tip just before radicle emergence. Mutants with a T-DNA insertion in this gene (K.O. *MAN7*) have a slower germination rate than the wild type (t50=34 h versus t50=25 h).
To gain insight into the transcriptional regulation of the *AtMAN7* gene, a bioinformatic search for conserved non-coding cis-elements (phylogenetic shadowing) within the Brassicaceae orthologous *MAN7* gene promoters has been done and these conserved motives have been used as baits to look for their interacting transcription factors (TFs), using as a prey an arrayed yeast library of circa 1,200 TFs from *A. thaliana*. The basic-leucine zipper AtbZIP44, but not its closely related ortholog AtbZIP11, has been thus identified and its regulatory function upon *AtMAN7* during seed germination validated by different molecular and physiological techniques, such are RT-qPCR analyses, mRNA Fluorescence *in situ* Hybridization (FISH) experiments, and by the establishment of the germination kinetics of both over-expression (oex) lines and T-DNA insertion mutants in AtbZIP44[2]. The transcriptional combinatorial network through which AtbZIP44 regulates *AtMAN7* gene expression during seed germination has been further explored through protein-protein interactions between AtbZIP44 and other bZIP members. In such a way, AtbZIP9 has been identified by yeast two-hybrid experiments and its physiological implication in the control of *AtMAN7* expression similarly established.

[1]R. Iglesias-Fernández *et al.* (2012) J. Exp. Bot. 63: 3975-3988
[2]R. Iglesias-Fernández *et al*. (2013) Plant J. (in press; doi: 10.1111/tpj.12162).

Acknowledgements: This work was financially supported by the Spanish grants BFU2009-11809. R.I-F. is financed by a Juan de la Cierva (JCI-2010-07909), C. B-S. by a post-doctoral contract (BFU2009-11809) and N. C-B. by a pre-doctoral fellowship from Xunta de Galicia (PRE/2012/323).